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EXAMINER	
DOTE, JANIS L	

ART UNIT	PAPER NUMBER
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NOTIFICATION DATE	DELIVERY MODE
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No. 10/618,640	Applicant(s) SUGIURA ET AL.	
	Examiner Janis L. Dote	Art Unit 1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *11 August 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3-14,16-20 and 22* is/are pending in the application.

4a) Of the above claim(s) *19 and 20* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3-14 and 16-18* is/are rejected.

7)☒ Claim(s) *22* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *8/11/08*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicants' submission filed on Aug. 11, 2008, has been entered.

2. The examiner acknowledges the addition of claim 22 filed on Aug. 11, 2008. Claims 1, 3-14, 16-20, and 22 are pending.

3. The examiner acknowledges applicants' elected species, oxide particles comprising the metal element Ti, set forth in the response filed on Aug. 22, 2005. Claims 1, 3-14, 16-18, and 22 read on the elected species.

Accordingly, claims 19 and 20 have been withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention and nonelected species of invention, there being no allowable generic or linking claim. Applicants timely traversed the restriction (election) requirement in Aug. 22, 2005.

4. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

5. Claims 1 and 3-10 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over US 2003/0044706 A1 (Konya), as evidenced by applicants' admissions in the instant specification at page 41, lines 3-4, and in Tables 1 and 2, examples 1-13 and comparative examples 1-4 (applicants' admission III).

Konya discloses hydrophobic spherical complex oxide particles comprising silica and titania. The hydrophobic spherical complex oxide particles have a particle size distribution of 40 to 180 nm. The hydrophobic spherical complex oxide particles are obtained by surface treating spherical complex oxide particles with hexamethyldisilazane. See example 6 in paragraphs 0058 to 0060 and in Table 1 at page 6. Hexamethyldisilazane is represented by the formula $R^1_3SiNHSiR^1_3$ where R^1 is methyl. See paragraph 0050. According to Konya, the hexamethyldisilazane introduces a $R^1_3SiO_{1/2}$ unit on the surface of the complex oxide particles, where R^1 is methyl. See Konya, paragraphs 0047-0049. Konya at paragraphs 0047-0048 discloses that the surface of the hydrophobized complex oxide particles has surface units of formula (1) $R^1_xR^2_yR^3_zSiO_{(4-x-y-z)/2}$, where each R

is a substituted or unsubstituted monovalent hydrocarbon group having 1 to 6 carbon atoms, and x, y, and z each is an integer of 0 to 3, and x+y+z is from 1 to 3. For hexamethyldisilazane, x is 3, y and z are 0, and formula (1) is $R^1_3SiO_{1/2}$ where R^1 is methyl. The Konya hydrophobic spherical complex oxide particles meet the compositional limitations recited in instant claims 1 and 5-10.

Konya does not disclose that its spherical hydrophobic complex oxide particles have circularities SF1 and SF2 as recited in the instant claims. Nor does Konya disclose that its spherical hydrophobic complex oxide particles have a number average particle size and standard deviation σ of the particle size distribution as recited in the instant claims. However, as discussed above, the Konya hydrophobic spherical complex oxide particles meet the compositional limitations recited in the instant claims. Konya describes the hydrophobic complex oxide particles as "spherical." See paragraphs 0046 and 0059 and example 6. The particles have a particle size distribution of 40 to 180 nm.

According to the instant specification at page 41, lines 3-4, "[i]f a particle is exactly spherical, the particle has both SF1 and SF2 of 100." The instant specification also discloses that the toners comprising oxide particles having the

SF1 and SF2 values, the number average particle size, and the particle size distribution recited in the instant claims provide images with very little or no "hollow defects." See Table 1, examples 1-13. Table 1 shows that when the oxide particles have SF1 and SF2 values that are not within the ranges recited in the instant claims, the toner provides images having "hollow defects." See, e.g., comparative example 4 in Tables 1 and 2, where the SF1 is 131 and the SF2 is 127. Table 1 also shows that when the oxide particles do not have the number average particle size or a particle size distribution as recited in the instant claims, the toner provides images having "hollow defects." The "hollow defects" are formed from untransferred toner. See, e.g., comparative examples 1 and 2 in Tables 1 and 2, where the number average particle size is 310 nm and 28 nm, respectively; and comparative example 3 in Tables 1 and 2, where σ is about 0.09R. According to Konya, when its hydrophobic complex oxide particles are used as an external additive in toners, the toners have improved fluidity and cleaning characteristics, as well as stable and uniform charging characteristics. Paragraph 0007. The toners provide images with no white spots, i.e., no adhesion of the toner to the photoconductor. In other words, there is no untransferred toner. Paragraph 0067 and Table 1, example 6. These properties

appear to be the same properties sought by applicants. Accordingly, because the Konya hydrophobic complex oxide particles in example 6 meet the compositional limitations recited in the instant claims and are described as "spherical," and because when said hydrophobic spherical complex oxide particles are used as the external additive in toners, the toners appear to have the properties sought by applicants, it reasonable to presume that the Konya spherical hydrophobic complex oxide particles have the SF1 value, the SF2 value, the number average particle size, and the particle size distribution as recited in the instant claims. The burden is on applicants to prove otherwise. In re Fitzgerald, 205 USPQ 594 (CCPA 1980).

6. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Konya, as evidenced by applicants' admission III, combined with US 2001/0051270 A1 (Yamashita).

Konya, as evidenced by applicants' admission III, discloses hydrophobic spherical complex oxide particles as described in paragraph 5 above, which is incorporated herein by reference. As discussed in paragraph 5 above, Konya discloses that the hydrophobic spherical complex oxide particles are obtained by surface treating spherical complex oxide particles with

hexamethyldisilazane, which introduces a $R^1{}_3SiO_{1/2}$ unit on the surface of the complex oxide particles.

Yamashita teaches that hydrophobic inorganic particles, such as hydrophobic silica particles, can be further treated with a silicone oil, such that the oil-treated inorganic particles have a "free silicone degree," i.e., a "liberation degree" of silicone oil of 10 to 70%. Paragraphs 0025-0027 and 0105-0110; and paragraph 0102, which discloses that the inorganic particles can be treated with a hydrophobizing agent before the silicone oil treatment. The free silicone degree of 10 to 70% meets the liberation degree of silicone oil range of 10 to 95% recited in instant claim 11. According to Yamashita, when said oil-treated silica particles are used as an external additive in a toner, the toner provides good quality images with "good fixing property without causing image omissions even when used for paper-drive image forming method." Paragraph 0022. According to Yamashita, "[w]hen the free silicone degree is too small, the effect (i.e., to prevent image omissions) can hardly be exerted. To the contrary, when the free silicone degree is too large, adverse effects such as deterioration of resolution and image density of the resultant images are exerted." Paragraphs 0046 and 0050. Thus, the reference recognizes that the free silicone degree is a result-effective variable. The

variation of a result-effective variable is presumably within the skill of the ordinary worker in the art.

It would have been obvious for a person having ordinary skill in the art to further treat the Konya hydrophobic spherical complex oxide particles with silicone oil as taught by Yamashita, such that the resultant silicone oil treated hydrophobic spherical complex oxide particles have a free silicone degree of 10 to 70%. That person would have had a reasonable expectation of successfully obtaining silicone oil treated hydrophobic spherical complex oxide particles that, when used as an external additive in a toner provided, the resulting toner provides good quality images with "good fixing property without causing image omissions" as disclosed by Yamashita.

7. Claims 12-14, 17, and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Konya, as evidenced by applicants' admission III, combined with US 6,080,519 (Ishiyama).

Konya, as evidenced by applicants' admission III, discloses hydrophobic spherical complex oxide particles as described in paragraph 5 above, which is incorporated herein by reference.

Konya further discloses a two-component developer comprising a carrier and a color toner. The color toner

comprises: (1) color toner particles; and (2) the hydrophobic spherical complex oxide particles of example 6. Paragraphs 0061 and 0067. The hydrophobic spherical complex oxide particles of example 6 are present in an amount of 2.4 parts by weight based on 100 parts by weight of the toner, which meets the amount ranges recited in instant claims 13 and 14. The amount of 2.4 parts by weight per 100 parts by weight of toner is determined from the information provided in paragraph 0061 (i.e., 1/(40+1)). The toner particles comprise a polyester binder resin, which meets the toner binder resin limitation recited in instant claim 17.

The Konya toner particles have an average particle size of 7 µm. Konya does not expressly describe the average particle size as a volume average particle size as recited in instant claims 12 and 18. However, the numerical value of the average particle size is within the range of numerical values of the volume average particle size of 2 to 7 µm recited in instant claims 12 and 18.

Ishiyama teaches that when the volume average particle size of the toner is less than 2 µm, the charge property of the toner is insufficient and lowers the developing property (i.e., the developing quality). If the volume average particle size is greater than 9 µm, the resolution of the image is degraded.

Col. 7, lines 22-27. The range of 2 to 9 μm overlaps the range of 2 to 7 μm recited in instant claims 12 and 18. Thus, the toner art recognizes the volume average particle size as being a result-effective variable. The variation of a result-effective variable is presumably within the skill of the person having ordinary skill in the art.

It would have been obvious for a person having ordinary skill in the art, in view of the teachings of Ishiyama, to adjust, through routine experimentation, the particle size of the toner particles disclosed by Konya, such that the resultant toner particles have a volume average particle size within the scope of instant claims 12 and 18. That person would have had a reasonable expectation of successfully obtaining a toner that provides images with improved resolution.

8. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Konya, as evidenced by applicants' admission III, combined with Ishiyama, as applied to claim 12 above, further combined with US 5,554,478 (Kuramoto).

Konya, as evidenced by applicants' admission III, combined with the teachings in Ishiyama renders obvious a color toner as described in paragraph 7 above, which is incorporated herein by reference.

Konya does not exemplify color toner particles comprising a polyol resin binder as recited in instant claim 16.

Kuramoto discloses a polyol binder resin that comprises a main chain portion containing an epoxy resin moiety and a polyoxyalkylene moiety. Col. 3, lines 52-56. The polyol binder resin is synthesized by reacting (1) an epoxy resin, (2) a dihydric phenol, and (3) either an alkylene oxide adduct of a dihydric phenol or a glycidyl ether thereof. See Synthesis Example 1 at col. 8. Said binder resin meets the polyol recited in instant claim 16. According to Kuramoto, color toners comprising said binder resin provide images with excellent color reproducibility and uniform glossiness. Col. 3, lines 32-35, and col. 19, lines 14-17. Said toners also have excellent environmental stability. Col. 3, lines 39-41.

It would have been obvious for a person having ordinary skill in the art to use the Kuramoto polyol binder resin as the binder resin in the toner rendered obvious over the combined teachings of Konya, as evidenced by applicants' admission III, and Ishiyama. That person would have had a reasonable expectation of successfully obtaining a color toner that has excellent environmental stability and that provides color images with excellent color reproducibility and uniform glossiness.

9. Applicants' arguments filed on Jun. 27, 2008, and Aug. 11, 2008, as applicable to the rejections over Konya set forth in paragraphs 5-8 above have been fully considered but they are not persuasive.

Applicants again assert that the Rule 132 declaration, which was executed by Hideki Sugiura on Dec. 26, 2007, and filed on Feb. 14, 2008, shows that the Konya hydrophobic spherical complex oxide particles comprising silica and titania do not have a standard deviation σ that satisfies the relation $R/4 \leq \sigma \leq R$, where R is the number average primary particle diameter, recited in instant claims 1, 12, and 18. Applicants further assert that Konya does not satisfy the above relation based on a Gaussian distribution analysis in the responses filed on Jun. 27, 2008, and Aug. 11, 2008.

However, the showing in the Rule 132 declaration is insufficient to show that the Konya complex oxide particle diameters do not have a standard deviation σ that satisfies the relation $R/4 \leq \sigma \leq R$ recited in the instant claims for the following reasons:

The declarant does not establish any credible relation between the data analyzed (Barder) and the reference relied on (Konya). The declaration is therefore no more than an

unsupported opinion, and is not entitled to any probative weight.

For example, the silica particles of Barder are approximately ten times larger than the complex oxide particles of Konya. The declarant states, without explanation, that the standard deviation of the Konya particle diameters is a factor of ten smaller than the standard deviation determined for the particles in Barder. The Konya particles and the particles in Barder, however, are made by different methods from different starting materials. Other than arbitrary numerical manipulation, there appears to be no basis for the declarant's conclusion.

Furthermore, the declarant has not explained why Figure 1 of Barder (Comparative Example, Single-phase reaction) is adequate to draw conclusions about the entire sample.

Accordingly, applicants have not met their burden of providing credible objective evidence showing that the Konya complex oxide particle diameters do not have a standard deviation σ that satisfies the relation $R/4 \leq \sigma \leq R$ recited in instant claims 1, 12, and 18.

In addition, applicants' allegation that Konya does not satisfy the above relation based on a Gaussian distribution is mere attorney argument. Applicants have not provided any

credible objective evidence to support their allegation. There is no evidence on the present record to show that the Konya particle size distribution range of 40 to 180 nm is fairly represented by a Gaussian distribution as alleged by applicants. The portion of the text book reference provided by applicants on Aug. 11, 2008, merely discloses expressions of "particle size distribution with function." The reference does not provide any objective evidence that the Konya particle size distribution range of 40 to 180 nm is represented by a Gaussian distribution. Furthermore, there is no evidence on the present record to show that the average particle diameter of Konya is 110 nm (i.e., (40 + 180)/2) as alleged by applicants. Nor is there any evidence that the number of the Konya complex oxide particles is "small," i.e., 005, at particle sizes of 40 nm and 180 nm, as alleged by applicants. See, for example, US 5,395,604 (Harris), example 1. In example 1, Harris makes silica particles in a size range of 70 to 170 nm, where the medium size is 140 nm. In Harris, the medium particle size is not 120 nm, i.e., (70+170)/2. In addition, the Rule 132 declaration filed on Feb. 14, 2008, page 3, states that "[a] number average particle diameter and standard deviation cannot be exactly found from the range of particle size distribution" disclosed in Konya. The arguments filed on Jun. 27, 2008, and Aug. 11, 2008, do not

explain why the Gaussian distribution is expected to be accurate. Accordingly, the rejections of claims 1, 3-14, and 16-18 over Konya set forth in paragraphs 5-8 above stand.

10. Claims 1 and 3-10 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Konya, as evidenced by applicants' admissions admission III.

Konya discloses hydrophobic spherical complex oxide particles comprising silica and titania. The hydrophobic spherical complex oxide particles have a particle size distribution of 50 to 250 nm. The hydrophobic spherical complex oxide particles are obtained by surface treating spherical complex oxide particles with hexamethyldisilazane. See example 7 in paragraphs 0058 to 0060 and in Table 1 at page 6. Hexamethyldisilazane is represented by the formula $R^1_3SiNHSiR^1_3$ where R^1 is methyl. See paragraph 0050. According to Konya, the hexamethyldisilazane introduces a $R^1_3SiO_{1/2}$ unit on the surface of the complex oxide particles, where R^1 is methyl. See Konya, paragraphs 0047-0049. Konya at paragraphs 0047-0048 discloses that the surface of the hydrophobized complex oxide particles has surface units of formula (1) $R^1_xR^2_yR^3_zSiO_{(4-x-y-z)/2}$, where each R is a substituted or unsubstituted monovalent hydrocarbon group

having 1 to 6 carbon atoms, and x, y, and z each is an integer of 0 to 3, and x+y+z is from 1 to 3. For hexamethyldisilazane, x is 3, y and z are 0, and formula (1) is $R^1{}_3SiO_{1/2}$ where R^1 is methyl. The Konya hydrophobic spherical complex oxide particles meet the compositional limitations recited in instant claims 1 and 5-10.

Konya does not disclose that its spherical hydrophobic complex oxide particles have circularities SF1 and SF2 as recited in the instant claims. Nor does Konya disclose that its spherical hydrophobic complex oxide particles have a number average particle size and standard deviation σ of the particle size distribution as recited in the instant claims. However, as discussed above, the Konya hydrophobic spherical complex oxide particles meet the compositional limitations recited in the instant claims. Konya describes the hydrophobic complex oxide particles as "spherical." See paragraphs 0046 and 0059 and example 7. The particles have a particle size distribution of 50 to 250 nm.

According to the instant specification at page 41, lines 3-4, "[i]f a particle is exactly spherical, the particle has both SF1 and SF2 of 100." The instant specification also discloses that the toners comprising oxide particles having the SF1 and SF2 values, the number average particle size, and the

particle size distribution recited in the instant claims provide images with very little or no "hollow defects." The discussion of applicants' admission III in paragraph 5 above is incorporated herein by reference. According to Konya, when its hydrophobic complex oxide particles are used as an external additive in toners, the toners have improved fluidity and cleaning characteristics, as well as stable and uniform charging characteristics. Paragraph 0007. The toners provide images with no white spots, i.e., no adhesion of the toner to the photoconductor. In other words, there is no untransferred toner. Paragraph 0067 and Table 1, example 7. These properties appear to be the same properties sought by applicants. Accordingly, because the Konya hydrophobic complex oxide particles in example 7 meet the compositional limitations recited in the instant claims and are described as "spherical," and because when said hydrophobic spherical complex oxide particles are used as the external additive in toners, the toners appear to have the properties sought by applicants, it reasonable to presume that the Konya spherical hydrophobic complex oxide particles have the SF1 value, the SF2 value, the number average particle size, and the particle size distribution as recited in the instant claims. The burden is on applicants to prove otherwise. In re Fitzgerald, 205 USPQ 594 (CCPA 1980).

11. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Konya, as evidenced by applicants' admission III, combined with Yamashita.

Konya, as evidenced by applicants' admission III, discloses hydrophobic spherical complex oxide particles as described in paragraph 10 above, which is incorporated herein by reference. As discussed in paragraph 10 above, Konya discloses that the hydrophobic spherical complex oxide particles are obtained by surface treating spherical complex oxide particles with hexamethyldisilazane, which introduces a $R^1_3SiO_{1/2}$ unit on the surface of the complex oxide particles.

Yamashita teaches that hydrophobic inorganic particles, such as hydrophobic silica particles, can be further treated with a silicone oil, such that the oil-treated inorganic particles have a "free silicone degree," i.e., a "liberation degree" of silicone oil of 10 to 70%. The discussion of Yamashita in paragraph 6 above is incorporated herein by reference.

It would have been obvious for a person having ordinary skill in the art to further treat the Konya hydrophobic spherical complex oxide particles with silicone oil as taught by Yamashita, such that the resultant silicone oil treated hydrophobic spherical complex oxide particles have a free

silicone degree of 10 to 70%. That person would have had a reasonable expectation of successfully obtaining silicone oil treated hydrophobic spherical complex oxide particles that, when used as an external additive in a toner provided, the resulting toner provides good quality images with "good fixing property without causing image omissions" as disclosed by Yamashita.

12. Claims 12-14, 17, and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Konya, as evidenced by applicants' admission III, combined with Ishiyama.

Konya, as evidenced by applicants' admission III, discloses hydrophobic spherical complex oxide particles as described in paragraph 10 above, which is incorporated herein by reference.

Konya further discloses a two-component developer comprising a carrier and a color toner. The color toner comprises: (1) color toner particles; and (2) the hydrophobic spherical complex oxide particles of example 7. Paragraphs 0061 and 0067. The hydrophobic spherical complex oxide particles of example 7 are present in an amount of 2.4 parts by weight based on 100 parts by weight of the toner, which meets the amount ranges recited in instant claims 13 and 14. The amount of 2.4 parts by weight per 100 parts by weight of toner is determined from the information provided in paragraph 0061

(i.e., 1/(40+1)). The toner particles comprise a polyester binder resin, which meets the toner binder resin limitation recited in instant claim 17.

The Konya toner particles have an average particle size of 7 µm. Konya does not expressly describe the average particle size as a volume average particle size as recited in instant claims 12 and 18. However, the numerical value of the average particle size is within the range of numerical values of the volume average particle size of 2 to 7 µm recited in instant claims 12 and 18.

Ishiyama teaches that when the volume average particle size of the toner is less than 2 µm, the charge property of the toner is insufficient and lowers the developing property (i.e., the developing quality). If the volume average particle size is greater than 9 µm, the resolution of the image is degraded. Col. 7, lines 22-27. The range of 2 to 9 µm overlaps the range of 2 to 7 µm recited in instant claims 12 and 18. Thus, the toner art recognizes the volume average particle size as being a result-effective variable. The variation of a result-effective variable is presumably within the skill of the person having ordinary skill in the art.

It would have been obvious for a person having ordinary skill in the art, in view of the teachings of Ishiyama, to

adjust, through routine experimentation, the particle size of the toner particles disclosed by Konya, such that the resultant toner particles have a volume average particle size within the scope of instant claims 12 and 18. That person would have had a reasonable expectation of successfully obtaining a toner that provides images with improved resolution.

13. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Konya, as evidenced by applicants' admission III, combined with Ishiyama, as applied to claim 12 above, further combined with US 5,554,478 (Kuramoto).

Konya, as evidenced by applicants' admission III, combined with the teachings in Ishiyama renders obvious a color toner as described in paragraph 12 above, which is incorporated herein by reference.

Konya does not exemplify color toner particles comprising a polyol resin binder as recited in instant claim 16.

Kuramoto discloses a polyol binder resin that comprises a main chain portion containing an epoxy resin moiety and a polyoxyalkylene moiety. The discussion of Kuramoto in paragraph 8 is incorporated herein by reference.

It would have been obvious for a person having ordinary skill in the art to use the Kuramoto polyol binder resin as the

binder resin in the toner rendered obvious over the combined teachings of Konya, as evidenced by applicants' admission III, and Ishiyama. That person would have had a reasonable expectation of successfully obtaining a color toner that has excellent environmental stability and that provides color images with excellent color reproducibility and uniform glossiness.

14. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

15. The following rejection is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

16. Claims 1, 4, 12, and 16 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-6 of copending Application No. 11/983,690 (Application'690) in view of Ishiyama.

Reference claim 3, which depends from reference claim 2, which in turn depends from reference claim 1, recites a toner comprising toner particles A, toner particles B, and silica particles having a number average primary particle diameter (R) of 80 to 200 nm, a shape factor SF-1 from 100 to 130, and a shape factor SF-2 from 100 to 125. The silica particles further satisfy the relationship $R/4 \leq \sigma \leq R$ where R is the number average particle diameter of the silica particles and σ is a standard deviation of particle diameter distribution of the silica particles, which meets the oxide particles relationship recited in instant claims 1 and 12. The silica particles SF-1 and SF-2 ranges meet the oxide particle shape SF1 and SF2 ranges recited in instant claims 1 and 12 and encompass the SF1 range of 100 to 125 and the SF2 range of 100 to 120 recited in instant claim 4. The lower endpoint, i.e., 80 nm, of the silica number

average particle size range of 80 to 200 nm, is within the oxide particle number average particle diameter range of 50 to 170 nm recited in instant claims 1 and 18. The Application'690 silica average particle diameter range of 80 to 200 nm overlaps the oxide average particle diameter range recited in instant claims 1 and 12.

Reference claim 6, which depends on reference claim 3, requires that toner particles A and B comprise a polyol resin, which is within the binder resin limitation recited in instant claim 16.

The reference claims do not recite that toner particles A and B have a volume average particle size as recited in instant claim 12.

However, Ishiyama teaches that when the volume average particle size of the toner is less than 2 μm, the charge property of the toner is insufficient and lowers the developing property (i.e., the developing quality). If the volume average particle size is greater than 9 μm, the resolution of the image is degraded. Col. 7, lines 22-27. The range of 2 to 9 μm overlaps the range of 2 to 7 μm recited in instant claim 12. Thus, the toner art recognizes the volume average particle size as being a result-effective variable. The variation of a result-effective variable is presumably within the skill of the

person having ordinary skill in the art.

It would have been obvious for a person having ordinary skill in the art, in view of the subject matter claimed in Application'690 and the teachings of Ishiyama, to adjust, through routine experimentation, the particle size of toner particles A and B recited in the claims of Application'690, such that the resultant toner particles have a volume average particle size within the scope of instant claim 12. That person would have had a reasonable expectation of successfully obtaining a toner that provides images with improved resolution.

17. Claim 22 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Konya does not teach or suggest a toner comprising its spherical complex oxide fine particles in combination with another "hydrophobed inorganic fine particles having an average particle diameter of primary particles of 1 to 100 nm" as recited in instant claim 22.

18. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Janis L. Dote whose telephone number is (571) 272-1382. The examiner can normally be reached Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Mark Huff, can be reached on (571) 272-1385. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Any inquiry regarding papers not received regarding this communication or earlier communications should be directed to Supervisory Application Examiner Ms. Sandra Sewell, whose telephone number is (571) 272-1047.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Janis L. Dote/
Primary Examiner, Art Unit 1795

JLD
Sep. 22, 2008